the Miocene fauna of Kansas and eastern Colorado, of which much remains to be done; Mr. Gidley is working upon the Pleistocene horses, and has just completed a very careful revision of the species; Dr. McGregor is working upon Belodon and the Phytosauria, comparing the American and German types; Professor Osborn is especially studying the Titanotheres. At Princeton, Professor Scott is working up the Patagonian mammals. In the Carnegie Museum, Mr. Hatcher has just completed a memoir upon Diplodocus.

EVOLUTION OF THE HORSE.

A FRIEND of the American Museum of Natural History has recently presented a fund, which is to be used exclusively for the collection, exhibition and study of the fossil horses of America. Professor Osborn has planned two expeditions for the coming season, with the especial object of filling gaps in the already rich series. It is proposed also to mount as complete a series of fossil skeletons as possible, showing all the chief stages in the evolution of the horse from *Hyracotherium* to *Equus*. Four complete skeletons have already been procured, two of which have been mounted. It is also proposed to exhibit recent types of skeletons, showing the effects of artificial selection. H. F. O.

AN ARCHEOLOGICAL MAP.

BENEDICT'S map of Chain-O'-Lakes, near Waupaca, Wis., copyrighted by F. M. Benedict in 1896, although not well known, is yet of considerable value and interest to archeologists. It locates the Wisconsin and Wolf River Indian trail, and by numbers indicates village sites, a bake hole, kitchen middens, graves, and conical, ovals and effigy mounds.

The location and description of such remains, however brief, are always valuable. The great number of archeological sites, and the comparative ease with which they could now be located and described, seem to cause local students to ignore the great need of present work in this line. They do not realize that the facilities for the work at the present time are far better than they will be a few years hence, when but a fragment of the same results could be accomplished. Mounds plowed over are harder to find, and crops ruined by the excavations of the explorer are more expensive than anything injured on wild land. Permission of owners is also harder to secure in more thickly settled regions. In this connection Mr. Benedict's efforts certainly are commendable.

It is very desirable that such a map be constructed by every local student or lover of archeology, until every county in the country is covered. It might be saved for future use either by being published or by filing duplicate copies of it in several libraries or museums. Certainly specimens found by such students deserve a careful record and preservation in the nearest substantial public museum or college.

HARLAN I. SMITH.

THE BIOLOGICAL STATION OF THE UNIVERSITY OF MONTANA.

THE Biological Station of the University of Montana will be open for its third season beginning July 22d, for four weeks. The laboratory is near the P. O. of Holt, Montana, at the northern end of Flathead Lake, and from it a great variety of collecting grounds is easily accessible: Flathead Lake is 32 miles long and 16 wide, with an elevation of 4,000 feet; Swan River debouches into the Lake near the station, and numerous other large and small streams, swamps, smaller lakes, forests and mountains with an altitude of ten thousand feet offer a variety of conditions not within reach of many similar institutions.

Courses in zoology, botany, ornithology and nature study will be offered. A small party will leave Missoula early in June and will make explorations in the Cabinet or Mission mountains, reaching the Laboratory at the beginning of the sessions.

The facilities of the station which are placed at the service of students and investigators embrace a gasoline launch, row-boats, botanical apparatus, insect nets, pumping apparatus, etc., and a team and wagon equipped with camping outfit.

The New York Botanical Garden will cooperate in the botanical work of the Station. Dr. D. T. MacDougal, director of the laboratories in that institution will join the party in

the field for the purpose of making collections, and pursuing some investigations upon the relations of climate and vegetation, and will continue both lines of work at the Station; the botanical work during the season will be under his guidance. Attention will be given to general botany, and to the special features of the flora of Montana. Mr. R. S. Williams, of the same institution, will spend the month of June in making collections in the northwestern part of the State, and will be present during a part of the session, giving especial attention to mosses and ferns.

No tuition fees are charged either to students or investigators; microscopes and glassware are supplied free, but the worker is expected to meet the cost of material actually consumed.

Applications and correspondence should be addressed to the Director, Professor Morton J. Elrod, Missouli, Mont., until July 10th; after this date to the Biological Station, Holt, Flathead Co., Mont.

SYNTONIC WIRELESS TELEGRAPHY.

AT a meeting of the Society of Arts, on May 15th, Mr. Marconi read a paper on 'Syntonic Wireless Telegraphy.' In the course of his paper, according to the report in the London *Times*, he gave an account of two methods by which he has been able to arrange a selective action in his instruments, so that, for example, two stations can converse with each other without being overheard by an intermediate one. In the first he employed an ordinary vertical radiator placed near an earthed conductor, the effect of the latter being to increase the capacity of the radiating vertical wire without increasing its radiative power; in this way syntonic results were obtained without difficulty. In one form of this arrangement the radiating and resonating conductors consisted of a cylinder, the earthed conductor being placed inside. Using cylinders of zinc only seven meters high and 1½ meters in diameter, good signals were obtained between St. Catherine's Point and Poole (50 kilometres distance), which were not interfered with or read by other wireless-telegraph installations at work in the immediate vicinity. The closely adjacent plates and large capacity of the receiver caused it to be a resonator with a very decided period of its own, and, therefore, it was not apt to respond to frequencies differing from its own period, or to be interfered with by stray ether waves, such as were sometimes caused by atmospheric disturbances, and occasionally proved troublesome in the summer. His second syntonized system was the outcome of experiments with the discharge of Leyden jar circuits. Taking for granted that the chief difficulty with the old system lay in the fact that the oscillations were very dead-beat, he tried, by associating with the radiator wire a condenser circuit known to be a persistent oscillator, to set up a series of persistent oscillations in the transmitting vertical wire. In one application of this principle the vertical conductor was connected to earth through the primary of a transformer, the secondary of which was in circuit with the coherer, and, in order to make the tuning between these two circuits more marked, an adjustable condenser was placed across the coherer. To obtain the best results, it was necessary that the free period of electrical oscillations of the vertical wire primary of the transformer should be in electrical resonance with the secondary of the transformer which included the condenser. It was easy to understand that, if there were several receiving stations, each tuned to a different period of electrical vibration, of which the corresponding inductance and capacity at the transmitting station were known, it would not be difficult to transmit to any one of them without danger of the message being picked up by the others for which it was not intended. But, further, it was possible to connect to the same vertical sending wire, through connections of different inductance, several differently tuned transmitters, and to the receiving vertical wire a number of corresponding receivers; then different messages could be sent by each transmitter to the radiating wire simultaneously, and received simultaneously by the vertical wire connected to differently tuned receivers. A further improvement had been obtained by the combination of the two systems described in the paper, the cylinders being connected to the secondary of the transmitting transformer and the receiver to a properly tuned induction coil, with